

REMARKS

The Examiner has required corrected drawings. Formal drawings are enclosed herewith.

Claims 1-19 are pending in the application. Claims 1, 14, and 17 are independent. Claims 18 and 19 are objected to. Claims 18 and 19 have been amended as suggested by the Examiner.

Claims 1-13 stand rejected under 35 U.S.C. §102(e) as anticipated by Timothy et al. The Examiner states that since the device taught by Timothy et al. performs the same function as the invention claimed in claim 1, the claim is anticipated even though the claimed components are not disclosed by Timothy et al..

Claim 1 claims a satellite antenna tracking system which includes three sensors and bias correction means. The sensors are a yaw sensor, a pitch sensor; and a roll sensor. The bias correction means includes two bias correction means for correcting yaw sensor bias under two different conditions, i.e. first bias correction means for correcting yaw sensor bias where roll sensor bias has been calibrated to zero, and second bias correction means for correcting yaw sensor bias where pitch sensor bias has been calibrated to zero. This is explained in detail at pages 25 and 26 of the instant specification.

The satellite antenna tracking system taught by Timothy et al. normally operates in conjunction with the ship's inertial navigation system (SINS). Figure 2 of Timothy shows "a diagram presenting the general schema of data flow within the invention. The logic and calculations reside in the Antenna Pointing Computer 25. The basis of the computations is a Kalman filter that estimates optimally calibration biases for the antenna pedestal alignments, magnetometer azimuth error, and AHRS drift should the ship's INS (SINS) malfunction." See col. 4, lines 34 et seq. Of Timothy et al. [Emphasis added.] The roll, pitch and yaw biases are normally obtained from the SINS. See col. 5, lines 1-13. When the SINS fails, the AHRS takes over if it had been operating before SINS failure, otherwise, data must be manually entered. See col. 7, lines 1-16. In either case, the biases are corrected by a Kalman filter. There is no mention in Timothy et al. how bias is corrected other than stating that a Kalman filter is used. There is no discussion of yaw sensor bias correction, only vague references to navigational bias correction. There is no mention of calibrating any sensor bias to zero nor is there any mention of alternative ways to correct yaw sensor bias depending on which other sensor bias has been calibrated to zero. Thus, Timothy et al. neither teaches nor suggests what is claimed in claim 1.

A claim is anticipated if all of the claim limitations are shown in a single prior art reference. "Every element of the claimed invention must be literally present, arranged as in the claim." Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Anticipation may not be shown by equivalents. Id. While a means plus function limitation may appear to include all means capable of achieving the desired function, the statute requires that it be construed to cover the corresponding structure, material, or acts

described in the specification and equivalents thereof. In re Bond, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). The Examiner has not shown that Timothy et al. shows every element of claim 1 arranged as they are in claim 1. The Examiner has not even shown that Timothy et al. shows the equivalent of each element of claim 1. The Examiner has merely argued that Timothy et al. achieve the same function as the arrangement in claim 1. This is clearly not the test for anticipation nor is it sufficient to make out a case for obviousness. Furthermore, there is no evidence that the apparatus described by Timothy et al. performs the same function as the apparatus claimed in claim 1. Though they both may track a satellite, one may do it better, faster, cheaper or more accurately than the other and thus not be an equivalent.

With regard to claim 2, the Examiner states that Timothy et al. teaches claim 2 at col. 4, lines 62-67, but there is no mention of tangents (as claimed in claim 2) there. In fact, the word “tangent” (or its abbreviation “tan”) never appears in the Timothy et al. patent.

Claim 3 depends from claim 2 and the arguments made above regarding claims 1 and 2 apply to claim 3 as well.

With regard to claim 4, the Examiner refers to col. 4, lines 24-65 of Timothy et al., but there is no mention there of the secant of the azimuth angle as claimed in claim 4. In fact, there is no mention of the trigonometric function “secant” (or its abbreviation “sec”) anywhere in Timothy et al.

With regard to claim 5, the Examiner states that this is taught by Timothy et al. at col. 4, lines 62-67, but there is no mention of the trigonometric functions of tangent and cotangent in that part of Timothy et al. In fact, there is no mention in Timothy et al. of any trigonometric function.

Claim 6 depends from claim 5 and the arguments made above with regard to claim 5 apply to claim 6 as well.

With regard to claim 7, the Examiner refers to col. 4, lines 24-65 of Timothy et al., but those lines do not mention the trigonometric function cosecant (csc) specified in claim 7. In fact no trigonometric functions are mentioned in Timothy et al.

Claim 8 depends from claim 1 and the arguments made above regarding claim 1 apply to claim 8 as well.

With regard to claim 9, the Examiner refers to col. 5, lines 20-47 of Timothy et al., but these lines do not mention any of the trigonometric functions specified in claim 9. In fact no trigonometric functions are mentioned in any part of Timothy et al.

Claim 10 depends from claim 9 and the arguments made above regarding claim 9 apply to claim 10 as well. Moreover, Timothy et al. does not specify that in an azimuth

correction function, roll, pitch, and yaw sensor outputs are adjusted by subtracting their respective biases.

Claim 11 depends from claim 8 and the arguments made above regarding claim 8 apply to claim 11 as well.

With regard to claim 12, the Examiner refers to col. 5, lines 20-47 of Timothy et al., but these lines do not mention any of the trigonometric functions specified in claim 12. In fact no trigonometric functions are mentioned in any part of Timothy et al.

Claim 13 depends from claim 12 and the arguments made above regarding claim 12 apply to claim 13 as well. Moreover, Timothy et al. does not specify that in an elevation angle correction function, roll, pitch, and yaw sensor outputs are adjusted by subtracting their respective biases.

Claims 14-16 stand rejected under 35 U.S.C. §103(a) as obvious over Timothy et al. in view of Perry et al. and further in view of Jan et al.

Independent claim 14 claims a satellite tracking system which includes an adjustable phase shifter coupled to a received signal strength indicator where the phase is adjusted in response to said received signal strength indicator in order to obtain maximum received signal strength. Clearly this is not done by Timothy et al. The Examiner states that Timothy et al. does not teach a received signal strength indicator or a

phase shifter. One would wonder why Timothy et al. is cited at all since the tracking system of Timothy et al. does not teach or suggest any of the body of claim 14, only the preamble, which U.S. Examiners typically ignore. The Examiner further states that Perry et al. discloses a signal strength indicator (RSSI) coupled to an antenna, but not a phase shifter. The Examiner further states that Jan et al. teaches a phase shifter.

The incentive for combining these references, according to the Examiner, occurs in two stages. First the combination of Timothy et al. and Perry et al. would be “to provide means to detect the incoming signal parsed from the transmitting medium so that the said system will have the capability to adjust accordingly.” Second, the addition of Jan et al. to the first combination would be “to provide a said phase shift matrix which automatically adjusts the phase of the signal output of the said antenna in response to said RSSI in order to obtain maximum received signal strength.” The Examiner does not cite any place in the prior art where either of these alleged incentives can be found.

Before discussing the specific teachings of the references and before discussing the Examiner’s alleged incentive to combine, it should be noted that these three references seem, on their face, to be uncombinable. Timothy et al. is concerned with a moving satellite receiving antenna which needs to be mechanically aimed and re-aimed. Perry et al. relates to a cellular telephone base station. Jan et al. relates to a cellular telephone satellite. None of these references are classified or cross referenced in a common class/subclass. In other words, if one were to take the Timothy et al. patent and look for other improvements in the art of aiming moving satellite antennas, one would

likely look in the classes/subclasses listed on the first page of the Timothy et al. patent. This would not result in the discovery of either of the secondary references. It is respectfully submitted that the only way the secondary references could be found would be by word searching on the phrases “signal strength” and “phase shift”, but then in order to do that search one would have to have already read claim 14. Word searching for patents using words taken from an applicant’s claim is blatant hindsight and is not permissible in making an obviousness rejection.

Turning now to the specific teachings of the references, Perry et al. teaches the use of signal strength in a cell phone base station to “hand off” a cell phone from one receiver to another as the cell phone moves from one cell to another. Signal strength from multiple receivers is monitored and the receiver with the highest signal strength is selected. If someone of ordinary skill had both the Timothy et al. reference and the Perry et al. reference in front of them, what combination would be suggested? There is no handing off from one satellite to another in Timothy et al. so what use would a signal strength indicator be unless you already knew that you needed it to practice claim 14? For these reasons alone, the rejection of claim 14 is faulty.

Before discussing the details of Jan et al., it should be noted that none of the classes/subclasses listed on Perry et al. also appears on Jan et al. It is believed that the Examiner found both of these references by word searching phrases taken from claim 14 because there is nothing on the face of either reference which would suggest combinability with each other or with Timothy et al. Jan et al. addresses the use of non-

geostationary cell phone satellites where the cell phone must be handed off from one satellite to another as a plurality of satellites move through the sky at a definite time interval. Jan et al. teaches a phased antenna array on the satellite which changes phase according to a time schedule as the satellite moves through the sky. This arguably deals with aiming but it is aiming the antenna in the satellite at a point on earth based on time intervals. It is respectfully submitted that it takes the act of invention to combine these three references.

Turning now to the Examiner's stated incentive for combining these references, as noted above, the Examiner has not indicated where he found this incentive. It is certainly not drawn from any of the cited references. If it is drawn from some other body of knowledge, the Examiner has not identified it.

The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. In re Keller, 208 U.S.P.Q. 871 (CCPA 1981). [Emphasis added.] In establishing a *prima facie* case of obviousness under 35 U.S.C. §103, it is incumbent upon the Examiner to provide a reason why one of ordinary skill in the art would have been led to modify the prior art reference or to combine reference teachings to arrive at the claimed invention. Ex parte Clapp, 227 U.S.P.Q. 972 (BPAI 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the Applicant's disclosure. Uniroyal, Inc. v. Ridkin-Wiley Corp., 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). [Emphasis

added.] It is respectfully submitted that the Examiner has not met the requirement of showing where the motivation to combine is found. “Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight.” In re Dembiczak, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999),

Regarding claim 15, in addition to the arguments made above, the Jan et al. reference does not specifically teach “a beam forming network coupled to said antenna and to said phase shifter.”

Regarding claim 16, in addition to the arguments made above, the Jan et al. reference does not specifically teach splitting the signal into two signals having a phase difference and adjusting the relative phase of the two signals. The portion of Jan et al. cited by the Examiner states that “Divider/combiner 57 divides each signal and provides in-phase signals to each one dimensional phase-shift matrix 52.” [Emphasis added.]

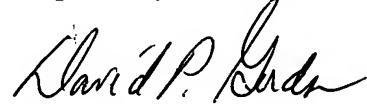
Claims 17-19 stand rejected under 35 U.S.C. §103(a) as obvious over Timothy et al. in view of Perry et al. and further in view of Jan et al. and further in view of Dedieu et al. The arguments made above regarding the combinability of the first three references applies to this rejection as well. Dedieu et al. concerns phase shifting in the Orthogonal Frequency Division Multiplexing of multiple MPEG video streams. While the Dedieu et al. device does concern a satellite receiver, it does not concern a settop box having a data

port. The settop box data port of claim 17 is well defined in the specification starting at page 33, line 18.

Claims 18 and 19 depend from claim 17 and the arguments made about claim 17 apply to these claims as well. In addition, arguments made above regarding claims 15 and 16 apply to these claims as well.

In light of all of the above, it is submitted that the claims are in order for allowance, and prompt allowance is earnestly requested. Should any issues remain outstanding, the Examiner is invited to call the undersigned attorney of record so that the case may proceed expeditiously to allowance.

Respectfully submitted,



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